

Enterprise Systems in the NFL: An In-depth Look at the San Francisco 49ers Partnership with SAP

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Abstract—This paper examines the relationship between the American National Football League (NFL) and the impact and influence of Enterprise Systems (ES). Specifically, the global leader in ES, SAP, and their new and extensive relationship with the San Francisco 49ers are examined. Results show that Enterprise Resource Planning (ERP) systems are not limited to supporting only standard business operations. SAP and other Enterprise Resource Planning (ERP) vendors appear to be a major part of the future for the American National Football (NFL) league and professional sports teams worldwide. The San Francisco 49ers are the pioneers of ERP in American football and it appears that most of the NFL teams are following the 49ers lead. From the draft to the Super Bowl, American football is evolving, and so are Enterprise Systems.

Index Terms—Business analytics, enterprise systems, information management, sports management.

I. INTRODUCTION

Enterprise systems are becoming more and more popular in the business world because of their practical use and their overall boost to company performance [1]. Nearly every company in the top 1000 globally use an enterprise or ERP system. ERP systems can have a strong influence on how business processes are carried out. Consider a living room entertainment center as an example for how an ERP system works. There is a remote for the cable TV box, one for the stereo, another for the stereo receiver, the DVD player, the television, and even the lights in the room. They all have separate purposes, yet they all contribute to the overall entertainment experience. Consider the entertainment experience to be a business. An ERP system creates a universal system for every department (remotely) and integrates them in a way that appears to be one cohesive process.

When it comes to the National Football League (NFL) organization, there are many departments as well, most of them unseen by the general public [2]. The players and coaches can be seen on TV, usually on Sundays, but what makes the entire organization function the rest of the time? Other activities include the front office management, the scouting team, the practice squads, and the game planning for each game. All of these departments are inter-related into the strategy of where teams place themselves currently, as well as where they want to go in the future. This analysis is often referred to as As-Is and To-Be process evaluation and is critical to the success of both NFL teams and sports teams in general.

An in-depth look into how ERP works and how the San Francisco 49ers operate using ERP for competitive advantage will be analyzed and described in this paper. In addition, SAP (the leading global ERP system vendor) will be analyzed related to how ERP and the NFL came together to create a successful environment to make the owners of the 49ers more money by increasing the organization's success both on and off the field.

II. INTRODUCTION TO ERP

ERP systems are becoming ubiquitous in the corporate world. They also continue to penetrate the small- and medium-sized company as firms like SAP and Oracle go after these large markets [3]. Although the benefits of these systems are many, businesses today seem to be moving toward this technology primarily because the systems are considered to be a source of competitive advantage, or at least a way to keep up with the competition. However, these systems bring with them their share of problems. Implementing these systems usually involves a significant amount of process change and often dictates changes in organizational structure [4]. In fact, many ERP implementations are used as a means for re-engineering the firm [5]. Management has a big role in the success and acceptance of these systems. As with the other technologies mentioned, the business process redesign inherent in ERP implementations requires major technical, organizational, and cultural change. The biggest associated challenge is fostering a new culture and managing the changes with consistency and coordination [6], [7].

When implementing information systems, there are usually two paths to take: adapting the inherent process to the people, or the people to the process. The former view stresses people as a firm's fundamental resource, while the latter view emphasizes consistency and coordination of corporate-wide information. Neither path has been proven better, however. More frequently today, these large ERP systems, which are designed around best practices, are being used as a facilitator of change in companies. This point is supported by Dwight Klappich, vice president of industry marketing at Ross Systems Inc. of Atlanta: "The key thing when you look at the success or failure of software implementation is whether the client is implementing software or are they implementing change within their business" [8].

III. SAN FRANCISCO 49ERS ORGANIZATION

American football seems like a simple staff of players, coaches, and managers. This view is incomplete, however. Excluding the players, there is an average of eight key

management employees in each teams' front office. Examples of these positions include: the owner, president/CEO, director of pro personnel, director of college scouting, as well as other positions (see Fig. 1) [9]. The front office is in charge of hiring and controlling the staff below them which are mostly coaches. These coaches cover the head coach, special teams, strength and conditioning, and every position on the field. Fig. 1 shows the current 2016 staff for the San Francisco 49ers.

San Francisco 49ers staff	
Front Office <ul style="list-style-type: none"> Co-Chairman – Denise DeBartolo York Co-Chairman – John York Chief Executive Officer – Jed York Co-Owner – Gideon Yu President – Al Guido Chief Strategy Officer/Executive Vice President of Football Operations – Paraag Marathe Chief Operating Officer – Ethan Casson General Manager – Trent Baalke Senior Personnel Executive – Tom Gamble Director of Pro Personnel – Mike Williams Assistant Director of Pro Personnel – Quentus Cumby Director of College Scouting – Matt Malaspina Director of Football Administration & Analytics – Brian Hampton 	Defensive Coaches <ul style="list-style-type: none"> Defensive Coordinator – Jim O'Neil Defensive Line – Jerry Azinano Assistant Defensive Line – Vince Ogbahase Inside Linebackers – Joe Bowden Outside Linebackers – Jason Tarver Defensive Backs – Jeff Hafley Assistant Defensive Backs – Roy Anderson Defensive Quality Control – Tem Lukabu
Head Coaches <ul style="list-style-type: none"> Head Coach – Chip Kelly 	Special Teams Coaches <ul style="list-style-type: none"> Special Teams Coordinator – Derius Swinton II Assistant Special Teams – Michael Clay
Offensive Coaches <ul style="list-style-type: none"> Offensive Coordinator – Curtis Modkins Quarterbacks – Ryan Day Running Backs – Tom Rathman Wide Receivers – Bob Bicknell Tight Ends – Jeff Nixon Offensive Line – Pat Flaherty Assistant Offensive Line – Eric Wolford Offensive Quality Control – Mick Lombardi 	Strength and Conditioning <ul style="list-style-type: none"> Director of Human Performance – Mark Uyeyama Strength, Conditioning & Nutrition Assistant – Kurt Schmidt Assistant Strength & Conditioning – Brian Johnson Strength & Conditioning Assistant – David Young Strength & Conditioning Assistant – Taylor Johnson

Fig. 1. San Francisco 49ers Staff 2016 [9].

There is a very high turnover rate in the NFL in the management of staff. More than likely the staff in one year will not be the same the next [10]. With performance of the teams being so crucial and each position and spot on the staff being watched over so closely, coaches and staff look for better opportunities with other teams or look for higher contracts. Contract work is what every coach, excluding the front office, works under. On the other hand, contracts can be terminated for bad performance [11].

Having the high turnover rate of employees in management actually appears to be a great strategy of NFL organizations due to the direction of the team often changing from year to year [12]. Most coaches are in a specialty position because they either played the position or they have other directly relevant experience [13]. Most firms hire to shore up a weakness or to build on a strength. Teams that hire for strength outperform teams that hire to shore up weaknesses [2]. For most companies in the business world, the majority of employees are kept for as long as possible to keep experience and talent within the company. To an extent, the NFL is similar when the league is thought of as a whole. Consider all 32 NFL teams as one company with each team being a division competing for funding. Moving employees from each division to better benefit that division is how the NFL works [13].

Strategy at the management staff level is just as valuable to NFL teams as to other business firms. The players may play the games, but they must be managed or coached well in order to be able to perform at the level fans and owners expect [2]. Managers of firms even use the term “team” because the strategy of sports teams is incorporated into the

business world. Another comparison to the real business world is that the NFL, like in a real market, have top contenders (market leaders) along with many other lesser “competitors.” With the force of the market, there can be a new leader of that market (winning team) by the end of each year [14].

IV. INTRODUCTION TO SAP

Headquartered in Walldorf, Germany, and with locations in more than 130 countries, SAP AG is the world leader in enterprise software and software-related services. SAP provides many services including: Business Applications, Database and Technology, Analytics, Cloud Technology, and Mobile Technologies [15]-[18]. The company's best-known software products are its enterprise resource planning application systems and management (SAP ERP), its enterprise data warehouse product – SAP Business Warehouse (SAP BW), SAP Business Objects software, and most recently, Sybase mobile products and in-memory computing appliance SAP HANA.

SAP competitors are primarily in the Enterprise Resource Planning Software industry. In this field, Oracle Corporation is SAP's major competitor [19]. SAP also competes in the Customer Relationship Management, Marketing & Sales Software, Manufacturing, Warehousing & Industrial Software, and Supply Chain Management & Logistics Software sectors. The graphic below (Fig. 2) shows the market share that SAP holds in comparison to the other vendors from 2010.

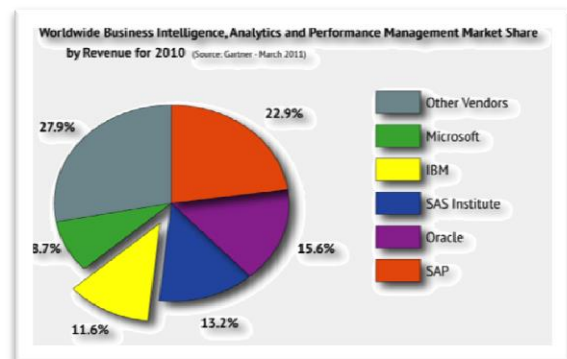


Fig. 2. Global ERP software market share 2010 [20].

Gartner group, the acknowledged global authority on technology forecasting and statistics further substantiates SAP's market leader position in their data from 2013. Columbus [1] uses the 2013 Gartner data to note in a Forbes article that SAP market share rose slightly to 24% over the 3-year period from 2010-2013. Second place Oracle shrunk from 15.6% to 12% in 2013. Fig. 2 and Fig. 3 present this data graphically.

V. SAP AND THE 49ERS

In September of 2012 SAP became an official partner of the San Francisco 49ers. They have invested extensively in the addition of the 49ers new stadium that was scheduled to be open for football games for the 2014-2015 season [21]. As part of the agreement, the team's practice facility, located

directly adjacent to the new stadium, was renamed the SAP Training Center. As the team's exclusive Business Software, Statistics and Performance Partner, SAP supports the 49ers year-round operations by enabling the organization to run better in multiple facets [22].



Fig. 3. Global ERP software market share 2013 [1].

“SAP has an unparalleled reputation for creating world-class business software and analytics solutions,” said 49ers Chief Executive Officer Jed York. “The 49ers are deeply committed to creating the ultimate fan experience, as we are building a stadium that embodies the best of Silicon Valley [7]. SAP will have an integral role in helping to achieve both of these goals. SAP’s commitment to rename our training facility reinforces the alignment of two strong brands” [7].

The SAP partnership will take the 49ers fan experience to the next level by using SAP’s expertise in analytics, mobile and real-time systems to decipher the information gathered from all digital fan touch points such as 49ers.com, Twitter, and Facebook [24]. That knowledge will help the team integrate new applications and features within the stadium on game day, and improve customer service throughout the year [24].

SAP will integrate innovative technologies and capabilities to help map out fan experience into the 68,500-seat stadium, as well as across the 49ers business operations. In addition to developing a statistics platform, SAP is also developing human resource (HR) systems for the franchise as well as other creative systems that have the potential to help football operations function more efficiently and effectively [25].

VI. ERP IMPACT ON STATISTICAL ANALYSIS

Statistical analysis is a major tool used by the NFL for evaluating players and potential players. Stats speak to the value of a player just like the stats of a product’s sales. Statistical analysis has been used in the NFL since the founding of the league. The goal has always been to predict an often unpredictable game. Statistics help teams rate their players, other teams’ players, estimate win probability, and maximize success. There are three key types of statistical analysis in football, they include: player evaluation, strategy, and team evaluation.

- 1) **Player Evaluation-** Players in each football position are ranked in different ways. For example Quarterbacks are ranked using a fairly complicated QB rating system that

incorporates passes, completions, touchdowns, and accuracy. Players are evaluated at each position and then ranked by total numbers compared to averages [26]. Some players can be evaluated in two categories such as a running back being evaluated in both rushing and catching passes [27]. This is similar to employees in the business setting who can work in two categories. Stats are recorded for these employees similar to recording stats for salesmen and manufacturers.

- 2) **Strategy-** Using similar methods to what was described in the previous section, data and statistical analysis is used by NFL teams to prepare for opposing teams’ tendencies. For example, teams need to decide if their players have a high enough probability of success on a 4th down play. They need to weigh the risk vs. the reward for every situation on the field [12]. There is statistical analysis that creates strategies for teams in certain situations such as going for long plays against vulnerable defenses or kicking field goals on fourth down against teams with good “red zone” defenses [27]. If not for statistics, teams would be lost on how to approach the next situation just like if there were no stats for competing companies, a company could not properly develop competitive strategies.

- 3) **Team Evaluation-** NFL teams play one game a week during the season which gives them one week to prepare for the next team. This allows teams to evaluate each other team’s situation or status in nearly real-time [28]. Situation analysis is a huge part of football. Players get injured and players are on hot and cold streaks at various points of the season. Ratings and statistical analysis of teams on a team level are also used extensively [27]. For example, if a team has a high powered offense, the strategy to keep that offense off the field is optimal. The message here is to take away the opponent’s strengths. Like the NFL, firms use this strategy in competition with their rivals every day.

Digging deeper into how NFL competitive strategy increasingly involves every player in every situation, football in the United States has become more and more complicated. With every situation decisions and player evaluations become more difficult as a seemingly infinite number combinations of variables can occur [29]. This complicated and more in-depth analysis is particularly acute in the NFL draft. More time and energy than ever before is being spent on strategies for drafting players out of college. How the strategies of the NFL draft and ERP relate are discussed in the next section.

VII. NFL DRAFT AND ERP

During the MIT Sloan Sports Analytics Conference, SAP announced a new Scouting Solution that professional sports teams can use to evaluate players [25]. The company had been working with the San Francisco 49ers in their preparation for the 2013 NFL Draft [3]. The solution brought together the cloud and in-memory technologies to help teams make smarter decisions. Scouts, coaches and other team personnel can now enter player evaluations in a new application, pull qualitative and quantitative information from scouting databases, compare prospects in real-time with

current players and collaborate with an interactive draft board [22]. While every business may not be in search of the next great prospect, it does show that with some creativity, business intelligence can impact performance for nearly any organization. By taking advantage of enterprise systems, sports teams are enhancing and reinventing many of their established processes [23].

VIII. CONCLUSION

Research shows that ERP is not strictly limited to supporting normal business operations. SAP and other ERP vendors have become a major part of the future for the NFL and professional sports teams worldwide. The San Francisco 49ers are the pioneers of ERP in American football and with the functionality and cohesiveness that SAP has to offer, it appears that most of the NFL teams are following the 49ers lead. Football IQ is not just something that belongs on the field and in the mind of coaches. The successful strategy and the mindset of where sports teams want to go from where they currently are, can for the first time, be maximized through an ERP system. From the draft to the Super Bowl, American football is evolving, and so is ERP.

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